



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,772	03/28/2001	Michael Petrov	02509/90	2624
26646 7590 08/03/2007 KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004			EXAMINER CUNNINGHAM, GREGORY F	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 08/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/819,772

Applicant(s)

PETROV ET AL.

Examiner

Greg F. Cunningham

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-10,55-63 and 114-117 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-10,55-63 and 114-117 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communications of amendment received 07/03/2007.
2. The disposition of the claims is as follows: claims 2-10, 55-63 and 114-117 are pending in the application. Claims 5, 58 and 115-117 are independent claims. Claims 1, 11-54 and 64-113 were cancelled.

Claim Rejections - 35 USC § 112

3. In view of amended claim 4, 112 rejection is withdrawn.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 2-10, 55-63 and 114-117 are rejected under 35 U.S.C. 102(b) as being anticipated by MatLab Primer, hereinafter MatLab.

- A. MatLab anticipates claim 5, “A method for restoring a previous version of a three dimensional mesh model on a computer system comprising:

retrieving a stored copy of an earlier state [page 3 at ‘Saving a session.

When one logs out or exits MATLAB all variables are lost. However, invoking the command save before exiting causes all variables to be written to a non-human-readable diskfile

named matlab.mat. When one later reenters MATLAB, the command load will restore the workspace to its former state.’] of the three dimensional mesh model [page 15 at ‘18. Graphics.

MATLAB can produce planar plots of curves, 3-D plots of curves, 3-D mesh surface plots, and 3-D faceted surface plots. The primary commands for these facilities are plot, plot3, mesh, and surf, respectively. An introduction to each of these is given below. To preview some of these capabilities, enter the command demo and select some of the graphics options.’]; and [page 18 at ‘3-D mesh and surface plots.

Three dimensional wire mesh surface plots are drawn with the command mesh. The command mesh(z) creates a three-dimensional perspective plot of the elements of the matrix z. The mesh surface is defined by the z-coordinates of points above a rectangular grid in the x-y plane. Try mesh(eye(10)).

Similarly, three dimensional faceted surface plots are drawn with the command surf. Try surf(eye(10)).

To draw the graph of a function $z = f(x, y)$ over a rectangle, one first defines vectors xx and yy which give partitions of the sides of the rectangle. With the function meshgrid one then creates a matrix x, each row of which equals xx and whose column length is the length of yy, and similarly a matrix y, each column of which equals yy, as follows:

```
[x,y] = meshgrid(xx,yy);
```

One then computes a matrix z, obtained by evaluating f entrywise over the matrices x and y, to which mesh or surf can be applied. You can, for example, draw the graph of

$z = e^{-x^2-y^2}$ over the square $[-2; 2] \times [-2; 2]$ as follows (try it):

```
xx = -2:.2:2;
```

Art Unit: 2624

```
yy = xx;[x,y] = meshgrid(xx,yy);
```

```
z = exp(-x.^2 - y.^2);
```

```
mesh(z)
```

One could, of course, replace the first three lines of the preceding with

`[x,y] = meshgrid(-2:.2:2, -2:.2:2);'` on the computer system [page ii, second para. at 'computer'];

retrieving an ordered list of operations on the computer system [page 9, at '12. M-files.

MATLAB can execute a sequence of statements stored in diskfiles. Such files are called "M-files" because they must have the file type of ".m" as the last part of their filename. Much of your work with MATLAB will be in creating and refining M-files. M-files are usually created using your local editor.

There are two types of M-files: script files and function files. Script files.

A script file consists of a sequence of normal MATLAB statements. If the file has the filename, say, rotate.m, then the MATLAB command rotate will cause the statements in the file to be executed. Variables in a script file are global and will change the value of variables of the same name in the environment of the current MATLAB session.

Script files may be used to enter data into a large matrix; in such a file, entry errors can be easily corrected. If, for example, one enters in a diskfile data.m

```
A = [
```

```
1 2 3 4
```

```
5 6 7 8
```

```
];
```

then the MATLAB statement data will cause the assignment given in data.m to be carried out. However, it is usually easier to use the MATLAB function load (see section 2).

An M-file can reference other M-files, including referencing itself recursively.']; and performing at least some of the operations in the ordered list of operations on the retrieved copy of the three dimensional mesh model [see page 18, supra,

'Three dimensional wire mesh surface plots are drawn with the command mesh. The command mesh(z) creates a three-dimensional perspective plot of the elements of the matrix z. The mesh surface is defined by the z-coordinates of points above a rectangular grid in the x-y plane. Try mesh(eye(10)).

Similarly, three dimensional faceted surface plots are drawn with the command surf. Try surf(eye(10)).

To draw the graph of a function $z = f(x, y)$ over a rectangle, one first defines vectors xx and yy which give partitions of the sides of the rectangle. With the function meshgrid one then creates a matrix x, each row of which equals xx and whose column length is the length of yy, and similarly a matrix y, each column of which equals yy, as follows:

```
[x,y] = meshgrid(xx,yy);
```

One then computes a matrix z, obtained by evaluating f entrywise over the matrices x and y, to which mesh or surf can be applied. You can, for example, draw the graph of

$z = e^{-x^2-y^2}$ over the square $[-2; 2] \times [-2; 2]$ as follows (try it):

```
xx = -2:2:2;
```

```
yy = xx; [x,y] = meshgrid(xx,yy);
```

```
z = exp(-x.^2 - y.^2);
```

Art Unit: 2624

mesh(z)'];

wherein the ordered list of operations contains the operations [M-file] which if performed in order [executed M-file] on the earlier state of the three dimensional mesh model [page 18, 3D mesh] would result in a current state of the three dimensional mesh model [see page 9, M-files and page 18, 3D mesh as given supra, whereby]” [as detailed].

B. MatLab anticipates claim 6, “The method of claim 5 wherein each operation is performed in the same order in which it was originally placed in the ordered list [ordered list of M-file and given 3D mesh example, see pages 9 and 18, supra for claim 5]” supra for claim 5 and [as detailed].

C. MatLab anticipates claim 7, “The method of claim 6 further comprising the step of.” rendering the retrieved copy of the three dimensional mesh model to a display device after each operation is performed [page 3 at ‘4. Statements, expressions, and variables; saving a session. MATLAB is an expression language; the expressions you type are interpreted and evaluated. MATLAB statements are usually of the form
variable = expression, or simply
expression

Expressions are usually composed from operators, functions, and variable names. Evaluation of the expression produces a matrix, which is then displayed on the screen and assigned to the variable for future use. If the variable name and = sign are omitted, a variable ans (for answer) is automatically created to which the result is assigned.

A statement is normally terminated with the carriage return. However, a statement can be continued to the next line with three or more periods followed by a carriage return. On the other hand, several statements can be placed on a single line if separated by commas or semicolons.

If the last character of a statement is a semicolon, the printing is suppressed, but the assignment is carried out. This is essential in suppressing unwanted printing of intermediate results.

MATLAB is case-sensitive in the names of commands, functions, and variables. For example, solveUT is not the same as solveut.

The command who (or whos) will list the variables currently in the workspace. A variable can be cleared from the workspace with the command clear variablename. The command clear alone will clear all nonpermanent variables.

The permanent variable eps (epsilon) gives the machine unit roundoff about 10^{-16} on most machines. It is useful in specifying tolerances for convergence of iterative processes.

A runaway display or computation can be stopped on most machines without leaving MATLAB with CTRL-C (CTRL-BREAK on a PC). Saving a session.

When one logs out or exits MATLAB all variables are lost. However, invoking the command save before exiting causes all variables to be written to a non-human-readable diskfile named matlab.mat. When one later reenters MATLAB, the command load will restore the workspace to its former state.'] and [page 15 at '18. Graphics.

MATLAB can produce planar plots of curves, 3-D plots of curves, 3-D mesh surface plots, and 3-D faceted surface plots. The primary commands for these facilities are plot, plot3, mesh, and surf, respectively. An introduction to each of these is given below. To preview some

Art Unit: 2624

of these capabilities, enter the command demo and select some of the graphics options.’ Wherein leaving the semicolon off renders each to the printer.] and [page 18 at 3-D mesh and surface plots, given supra for claim 5, wherein the plot command renders to a display device]” supra for claim 6 and [as detailed].

D. MatLab anticipates claim 8, “The method of claim 6 wherein the ordered list of operations is filtered to exclude at least one record [page 18 at ‘Completely analogous to plot in two dimensions, the command plot3 produces curves in three dimensional space. If x, y, and z are three vectors of the same size, then the command plot3(x,y,z) will produce a perspective plot of the piecewise linear curve in 3-space passing through the points whose coordinates are the respective elements of x, y, and z. These vectors are usually defined parametrically. For example, $t=0.1:0.1:20*\pi$; $x=\cos(t)$; $y=\sin(t)$; $z=t.^3$; plot3(x,y,z) will produce a helix which is compressed near the x-y plane (a \slinky”). Try it.

Just as for planar plots, a title and axis labels (including xlabel) can be added. The features of axis command described there also hold for 3-D plots; setting the axis scaling to prescribed limits will, of course, now require a 6-vector.’ Wherein limiting the axis scale will limit (filter) the plotted values for (at least one record) if not more depending on the set limit values]” supra for claim 6 and [as detailed].

E. MatLab anticipates claim 9, “The method of claim 8 wherein the at least one excluded record is at an end of the list [Just as for planar plots, a title and axis labels (including xlabel) can be added. The features of axis command described there also hold for 3-D plots; setting the axis scaling to prescribed limits will, of course, now require a 6-vector.’ Wherein limiting the axis

Art Unit: 2624

scale will limit (filter) the plotted values for (at least one record at the end of a list) if not more depending on the set limit values]" supra for claim 8 and [as detailed].

(Examiner's note: Beyond this MatLab Primer, MatLab also has many toolboxes with filtering functions, and commands also to set floor, ceiling, domain and range parameters.)

F. MatLab anticipates claim 10, "The method of claim 8 wherein the at least one excluded record is at least one record removed from an end of the list [Just as for planar plots, a title and axis labels (including xlabel) can be added. The features of axis command described there also hold for 3-D plots; setting the axis scaling to prescribed limits will, of course, now require a 6-vector.] Wherein limiting the axis scale will limit (filter) the plotted values for (at least one record removed from end of list) if not more depending on the set limit values]" supra for claim 8 and [as detailed].

(Examiner's note: Beyond this MatLab Primer, MatLab also has many toolboxes with filtering functions, and commands also to set floor, ceiling, domain and range parameters.)

G. Per independent claim 58, this is directed to an article of manufacture for performing the method of independent claim 5, and therefore is rejected to independent claim 5.

H. Per dependent claims 59-63, these are directed to an article of manufacture for performing the method of dependent claims 6-10, and therefore are rejected to dependent claims 6-10.

J. MatLab anticipates claim 115, "A method for managing a three dimensional mesh model on a computer system; comprising:

storing a copy of a first state of the three dimensional mesh model on the computer system [page 3 at 'Saving a session.

When one logs out or exits MATLAB all variables are lost. However, invoking the command `save` before exiting causes all variables to be written to a non-human-readable diskfile named `matlab.mat`. When one later reenters MATLAB, the command `load` will restore the workspace to its former state.'] of the three dimensional mesh model [page 15 at '18. Graphics.

MATLAB can produce planar plots of curves, 3-D plots of curves, 3-D mesh surface plots, and 3-D faceted surface plots. The primary commands for these facilities are `plot`, `plot3`, `mesh`, and `surf`, respectively. An introduction to each of these is given below. To preview some of these capabilities, enter the command `demo` and select some of the graphics options.']; and [page 18 at '3-D mesh and surface plots.

Three dimensional wire mesh surface plots are drawn with the command `mesh`. The command `mesh(z)` creates a three-dimensional perspective plot of the elements of the matrix `z`. The mesh surface is defined by the `z`-coordinates of points above a rectangular grid in the `x-y` plane. Try `mesh(eye(10))`.

Similarly, three dimensional faceted surface plots are drawn with the command `surf`. Try `surf(eye(10))`.

To draw the graph of a function $z = f(x, y)$ over a rectangle, one first defines vectors `xx` and `yy` which give partitions of the sides of the rectangle. With the function `meshgrid` one then creates a matrix `x`, each row of which equals `xx` and whose column length is the length of `yy`, and similarly a matrix `y`, each column of which equals `yy`, as follows:

```
[x,y] = meshgrid(xx,yy);
```

One then computes a matrix `z`, obtained by evaluating `f` entrywise over the matrices `x` and `y`, to which `mesh` or `surf` can be applied. You can, for example, draw the graph of

Art Unit: 2624

$z = e^{-x^2-y^2}$ over the square $[-2; 2] \times [-2; 2]$ as follows (try it):

```
xx = -2:.2:2;
```

```
yy = xx;[x,y] = meshgrid(xx,yy);
```

```
z = exp(-x.^2 - y.^2);
```

```
mesh(z)
```

One could, of course, replace the first three lines of the preceding with

```
[x,y] = meshgrid(-2:.2:2, -2:.2:2);
```

performing operations on the three dimensional mesh model, wherein the three dimensional mesh model is in a second state after performing the operations [MatLab's M-file and 3-D mesh, see pages 9 and 18];

storing a record of each of the operations in an ordered list on the computer system [M-file, page 9]; and

reapplying at least some of the operations stored in the ordered list to the stored first state of the three dimensional mesh model [The editing of M-files to modify the ordered list of the M-file, see page 13 at 'Managing M-files'], wherein the three dimensional mesh model is in a third state after reapplying the at least some of the operations [Editing M-files via page 13 'Managing M-files' and exemplified on page 18 at 'One could, of course, replace the first three lines of the preceding with `[x,y] = meshgrid(-2:.2:2, -2:.2:2);` Try this plot with surf instead of mesh', whereby "a third state" is anticipated by editing the parameter values and/or functions of the M-file]" [as detailed].

K. MatLab anticipates claim 2, "The method of claim 115 wherein the step of storing a record of each of the operations includes:

storing all of the parameters necessary to repeat the operations [corresponds to MatLab's save command: 'invoking the command save before exiting causes all variables to be written to a non-human-readable diskfile named matlab.mat' – page 3, and/or M-files, see page 9 given supra]" supra for claim 115 and [as detailed].

L. MatLab anticipates claim 3, "The method of claim 2 wherein the ordered list contains a record for each operation that has been previously performed on the three dimensional mesh model in the order in which it was performed [M-files and 3-D mesh, see pages 9 and 18, given supra]" supra for claim 2 and [as detailed].

M. MatLab anticipates claim 4, "The method of claim 115 wherein the step of reconstructing the three dimensional model includes:

retrieving the stored copy of the first state of the three dimensional mesh model [MatLab's load command, see 'the MATLAB command load.ext will read this file to the variable data in your MATLAB workspace. This may also be done with a script file (see section 12)' - pages 2 , 'the command load will restore the workspace to its former state' – page 3, and M-files – page 9];

retrieving the ordered list of operations [M-file – page 9, given supra]; and

performing at least one operation in the ordered list of operations on the retrieved copy of the first state of the three dimensional mesh model [M-file and 3-D mesh – pages 9 and 18, given supra]" supra for claim 115 and [as detailed].

N. Per independent claims 116 and 117, these are directed to an article of manufacture and a system, respectively, for performing the method of independent claim 115, and therefore are rejected to independent claim 115.

Art Unit: 2624

P. Per dependent claims 55-57 and 114, these are directed to an article of manufacture and a system, respectively, for performing the method of dependent claims 2-4, and therefore are rejected to dependent claims 2-4.

Response to Arguments

6. With regard to claims 5 and 58, pertaining to a computer system, any operation(s) performed at all on a computer system will result in a new current state or just simply a current state of the computer system. This further applies to any application program, system program, kernel routine and/or call, or even a three-dimensional mesh model. The last operation(s) or the most recent operation(s) just performed results in a current state. Consequently, MatLab teaches the combined elements of claims 5 and 58.

If there was suppose to be a relationship between “a current state” and “a previous version” in claims 5 and/or 58, it has not been established in said claims. Actually the “previous version” of the preamble in claims 5 and 58 lack patentable weight since these phrases are never referred to again.

A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Now with regard to claims 115 – 117, concerning first, second and third states, MatLab anticipates said claims by describing M-files wherein MatLab executes a sequence of statements

stored in diskfiles. Saving the 3-D wire mesh surface described on page 18 as M-files and executing the M-files establish a first state (one prior to executing the M-file) and a second state (the result after executing the M-file). At the bottom of page 9, since M-files can reference other M-files, a plurality of sequential states result thereby generating a third, fourth, fifth ... states, hence meeting the limitations of storing first state, operations performed results in a second state, storing operations (M-file), reapplying at least some operations resulting in a third state (an M-file can reference other M-files, including referencing itself recursively) for claims 115 – 117.

The claim language for claims 5, 58 and 115 – 117 is not positively assertive to the point that they merely say what would result if certain operations were preformed, just as MatLab M-files recite what will occur if the sequence of operations are carried out via M-files, thus placing the system in a new current state. The description and use of M-files, script files, function files and MatLab statements are functionally equivalent to and anticipate claims 5, 58 and 115 – 117.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2624

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Responses

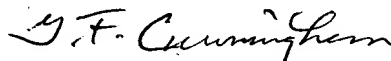
8. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Inquiries

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on (571) 272-7778. The Central FAX Number for the organization where this application or proceeding is assigned is **571-273-8300**.

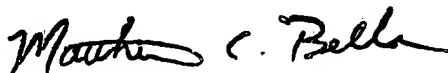
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gregory F. Cunningham
Examiner, Art Unit 2624

gfc

7/25/2007



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600